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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,507	04/17/2006	Ossi Kalevo	800.0346.U1(US)	6243

10948 7590 05/10/2011
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EXAMINER	
CHU, RANDOLPH I	
ART UNIT	**PAPER NUMBER**
2624	

MAIL DATE	DELIVERY MODE
05/10/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/576,507	KALEVO ET AL.	
	Examiner	Art Unit	
	RANDOLPH CHU	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 January 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Argument

1. Applicant's arguments filed on 1/30/2011 have been fully considered but they are not persuasive.

Applicants argue on page 1 of the response that the specification describes the first stage can be shown in an analog form.

The examiner acknowledges that, however the specification does not describe how digital image scaling is done by analog form in detail. One with ordinary skilled in the art would not know how digital image scaling can be done by analog form.

Applicants argue on page 2 of the response that the disclosure of Mutoh does not teach coarse scaling is simpler than fine scaling.

The examiner disagrees. The example of Mutoh have that coarse scaling have one operation (z1) and fine scaling have two operation (ZZ/Z1) therefore, coarse scaling in Mutoh is simpler than fine scaling.

Applicant argue that Mutoh's The first processing way which is a high-order image processing and thus, for example, includes the jaggy processing and thereby, a

smooth contour of a relevant image is obtainable as shown in FIG. 1 C, in comparison to a case of FIG. 1B which is obtained with a simple magnification processing and has a conspicuous jaggy phenomenon as mentioned above" (paragraph [0083], emphasis added). "the processing time required for executing image magnification processing in the first processing way (jaggy processing) is significantly larger then that in the second processing way (simple magnification).

The examiner disagrees. Jaggy processing in Mutoh is extra process of plurality of processes in first processing way that make image smooth, it is nothing to do with scaling. This process (extra process) makes the first processing way longer than the second processing way (simple magnification). Therefore coarse scaling of first processing way in Mutoh is simpler than fine scaling.

Applicant state on page 3 of the response that it is not clear where Mutoh is suggested to teach "receiving and intermediate matrix" at any processor.

The Applicant also state Mutoh teaches that both functions are preformed by the CPU. In order to compute intermediate image created by first processing way, the intermediate image has to be received by the CPU.

Applicant's argue on page 15 of the response that the disclosure of Mutoh does not teach "receiving, from a first processor at a second processor, an intermediate matrix" and "fine scaling, by the second processor, the intermediate matrix"

The examiner disagrees. The claim does not require that the first processor and second processor are different.

Claim Rejections - 35 USC § 112

2. Claims 13 - 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

With respect to claims 13-15, the specification of instant application does define coarse scaling as in analog form. But, parent claim 1 scales original matrix to intermediate and intermediate matrix to final matrix. In context of the specification matrix can be read as digital image (abstract), and the specification does not describe how digital image scaling is done by analog.

3. Claims 1-8, 10-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to claim 1, 6 and 12, nowhere in the specification of instant application described that “coarse scaling is simpler than fine scaling” only thing described by specification is “coarse stage is simple” (para [0028]).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

A. Claims 1, 3, 5, 6, 7, 12 and 16-20 are rejected under 35 USC 103(a) as being unpatentable over Mutoh (US 2004/0057634) in view of Matsui et al (US 5,583,989).

With respect to claim 1, Mutoh teaches receiving, from a first processor at a second processor, an intermediate matrix having a coarse scaling ratio 1/X as compared to an original matrix (Fig. 17 ref label S72, S73 and S74, para [0152]), and

fine scaling, by the second processor, the intermediate matrix by using a ratio Y/Z (ZZ/Z1) to create a final matrix image having a scaling ratio R (ZZ at Fig. 17 Start) as compared to the original matrix (Fig. 17 ref label S74 and S75); where Y <Z, the scaling ratio R corresponds approximately to an equation Y/(Z*X), and coarse scaling is simpler than fine scaling. (The embodiment of Fig 17 of Mutoh is a size change

processing such as a magnification processing and size reduction processing or so (para [0150]). In example of paragraph [0152] is magnification example. It would be easy to modify the example of Mutoh to size reduction example of same scaling factor 8.4. Then, integer size-change portion would be 8 and Z1 would be $\frac{1}{8}$.

$$R = ZZ = \frac{1}{8.4} = Z1 \cdot \frac{ZZ}{Z1} = \frac{1}{8} \cdot \frac{1/8.4}{1/8} = \frac{1}{8} \cdot \frac{8}{8.4} = \frac{1}{X} \cdot \frac{Y}{Z}$$

However, ZZ and $Z1$ of $\frac{ZZ}{Z1}$ are not integer. But it is relatively easy to construct multiplication or division by integers.

Matsui et al. teach real number is converted into a faction expressed in integer numerator and denominator (col. 4 lines 50-57).

And, it would be $\frac{1}{X} \cdot \frac{Y}{Z} = \frac{1}{8} \cdot \frac{8}{8.4} = \frac{1}{8} \cdot \frac{80}{84}$.

Also, coarse scaling ($\frac{1}{8}$) is simpler than fine scaling ($\frac{80}{84}$). And after coarse scaling, image size would be smaller, so that there requires smaller memory and computational requirement is reduced.)

At the time of the invention it would have been obvious to a person of ordinary skill in the art to substitute non integer scale factor as a ratio of integer in the method of Mutoh.

Accordingly, scale factors, even those that are not integers, can be easily applied by expressing the scale factor as a ratio of integer. It is easier to construct to divide and

then multiply by integers to arrive at the required scale factor than to do calculation that scales by a non-integer amount.

With respect to claim 3, Mutoh teach that integer X is selected to be as great as possible, according to the integers maximums selected for Y and Z and the selected scaling ratio R. (para. [0152]).

With respect to claim 5, Mutoh teach that 1/X is approximately Y/Z (para [0150] – [0152], scaling rate is close to 1, then 1/X is approximately Y/Z).

With respect to claim 6, please refer to rejection for claim 1.

With respect to claim 7, Mutoh teach in that the apparatus in integrated in connection with the image sensor of a camera (para. [0148]).

With respect to claim 12, please refer to rejection for claim 1.

With respect to claim 16, Mutoh teaches that selecting a value of the ratio 1/X for coarse scaling the original matrix so as to reduce a memory requirement and a computational requirement when fine scaling the intermediate matrix (In example of Claim 1 above, when scaling ratio is 8.4, ratio 1/x is selected as 1/8, so that

intermediate matrix is much smaller compare to original matrix, so that computational requirement when fine scaling the intermediate matrix is reduced).

With respect to claim 17, Mutoh teaches that selecting X, Y and Z so that Y/Z is greater than or equal to 1/2 and less than or equal to 1 (In example of Claim 1 above, when reduction scaling ratio is a.b, ratio 1/X is selected as 1/a, and Y/Z is a/a.b, so that Y/Z is greater than or equal to 1/2 and less than or equal to 1. see table below).

a.b	a		a/a.b
1.0	1		1
1.1	1		0.909091
1.2	1		0.833333
1.3	1		0.769231
1.4	1		0.714286
1.5	1		0.666667
1.6	1		0.625
1.7	1		0.588235
1.8	1		0.555556
1.9	1		0.526316
2.0	2		1
2.1	2		0.952381
2.2	2		0.909091
2.3	2		0.869565
2.4	2		0.833333
2.5	2		0.8
2.6	2		0.769231
2.7	2		0.740741
2.8	2		0.714286
2.9	2		0.689655
3.0	3		1
3.1	3		0.967742
3.2	3		0.9375
3.3	3		0.909091
3.4	3		0.882353
3.5	3		0.857143
3.6	3		0.833333
3.7	3		0.810811
3.8	3		0.789474
3.9	3		0.769231

4.0	4		1
4.1	4		0.97561
4.2	4		0.952381
4.3	4		0.930233
4.4	4		0.909091
4.5	4		0.888889
4.6	4		0.869565
4.7	4		0.851064
4.8	4		0.833333
4.9	4		0.816327

With respect to claim 18, Mutoh teaches that receiving, at the first processor, the original matrix (Fig. 7 S72); coarse scaling the original matrix by using the ratio 1/X to create pixels of the intermediate matrix (Fig. 7 S72 and S73), and

sending, from the first processor to the second processor, the intermediate matrix (Fig. 7 S73 to S74).

With respect to claim 19, please refer to rejection for claim 16.

With respect to claim 20, please refer to rejection for claim 17.

B. Claim 2 is rejected under 35 USC 103(a) as being unpatentable over Mutoh (US 2004/0057634) in view of Matsui et al. (US 5,583,989) and further in view of Yamaguchi (US Patent 6,424,753)

Mutoh and Matsui et al. teach all the limitations of claim 1 as applied above from which claim 2 respectively depend.

Mutoh and Matsui do not teaches expressly that the second scaling is performed, after the first scaling, to the pixel group calculated for the intermediate matrix, without completing the calculation of the entire intermediate matrix.

Yamaguchi teaches parallel processing of scaling circuit (col. 11 lines 1-8).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to process scaling process in parallel in the method of Mutoh and Matsui.

The suggestion/motivation for doing so would have been that it would speed up the processing.

Therefore, it would have been obvious to combine Yamaguchi with Mutoh and Matsui to obtain the invention as specified in claim 2.

C. Claim 4 is rejected under 35 USC 103(a) as being unpatentable over Mutoh (US 2004/0057634) in view of Matsui et al (US 5,583,989) and further in view of Kamon (US Patent 4,827,433)

Mutoh and Matsui teach all the limitations of claim 1 as applied above from which claim 4 respectively depend.

Mutoh and Matsui do not teaches expressly , in the first scaling the integer X is selected to be as greatest as possible as the power of two.

Kamon teaches in the first scaling the integer X is selected to be as greatest as possible as the power of two. (col. 29 line 61- col. 30 line 7).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to process scaling process in power of two in the method of Mutoh and Matsui.

The suggestion/motivation for doing so would have been that it would easier to calculate in power of two in computer calculation environment (binary).

Therefore, it would have been obvious to combine Kamon with Mutoh and Matsui to obtain the invention as specified in claim 4.

D. Claim 8 is rejected under 35 USC 103(a) as being unpatentable over Mutoh (US 2004/0057634) in view of Matsui et al (US 5,583,989) and further in view of Kim (US 2002/0060676)

Mutoh and Matsui teach all the limitations of claim 6 as applied above from which claim 8 respectively depend.

Mutoh and Matsui do not teach expressly that the coarse scaler is integrated in connection with the image sensor of a camera and the fine scaler is integrated in the host system.

Kim teaches that the scaler is integrated in connection with the image sensor of a camera and the host system. (Fig 3).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to connect scaler to sensor and host in the appartus of Mutoh and Matsui.

The suggestion/motivation for doing so would have been that it would faster scaler with scaling image right out of sensor.

Therefore, it would have been obvious to combine Kim with Mutoh and Matsui to obtain the invention as specified in claim 8.

E. Claim 10 is rejected under 35 USC 103(a) as being unpatentable over Mutoh (US 2004/0057634) in view of Matsui et al (US 5,583,989) and further in view of Najand (US Patent 7,203,379).

Mutoh and Matsui teach all the limitations of claim 6 as applied above from which claim 10 respectively depend.

Mutoh and Matsui do not teach expressly the scaling function of at most 4 image-sensor lines for each colour component.

Najand teaches the scaling function of at most 4 image-sensor lines for each colour component. (col. 11 line 64-col. 12 line 11).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to scaling 4 line at a time in the appartus of Mutoh and Matsui.

The suggestion/motivation for doing so would have been that it would adjust scaling filter depending on buffer size.

Therefore, it would have been obvious to combine Najand with Mutoh and Matsui to obtain the invention as specified in claim 10.

F. Claim 11 is rejected under 35 USC 103(a) as being unpatentable over Mutoh (US 2004/0057634) in view of Matsui et al (US 5,583,989) and further in view of Yang et al. (US 2002/0025084).

Mutoh and Matsui teach all the limitations of claim 11 as applied above from which claim 11 respectively depend.

Mutoh and Matsui do not teach expressly the apparatus is fitted to a mobile station.

Kim teaches the apparatus is fitted to a mobile station (abstract).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to connect scaler to mobile station in the appartus of Mutoh and Matsui.

The suggestion/motivation for doing so would have been make portable image scaler.

Therefore, it would have been obvious to combine Kim with Mutoh and Matsui to obtain the invention as specified in claim 11.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RANDOLPH CHU whose telephone number is (571)270-1145. The examiner can normally be reached on Monday to Thursday from 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Randolph Chu/
Examiner, Art Unit 2624